

# Tutorial for Easy BBK

SJTU-Software

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“Easy BBK(An Easy Biobrick Blueprint’s packAge)” has four main function: “search”, “compare”, “present”, and “upload”. This part will guide users about how to use this software tool.

## 2.2.1 How to start EASY BBK

Software environment: Java SE Development Kit 6 and later version.

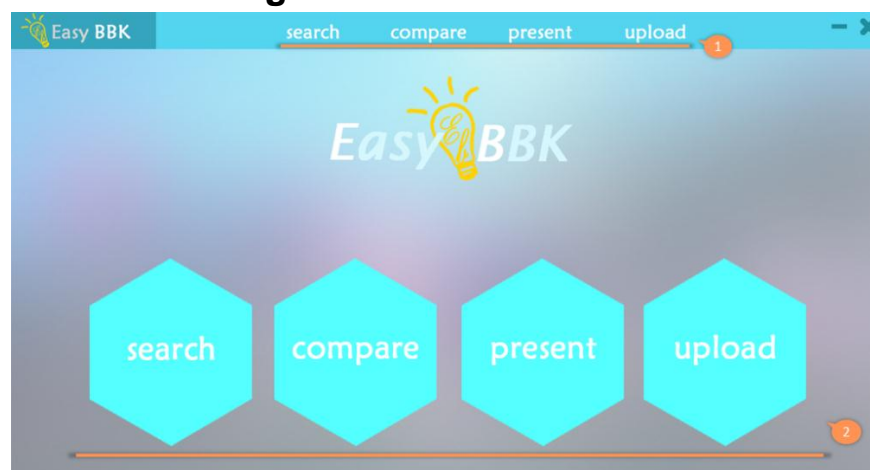
1. Download EASY BBK from github
2. Download the latest JDK from

<http://www.oracle.com/technetwork/java/javase/downloads/index.html>

Java SE Development Kit 8u25		
You must accept the Oracle Binary Code License Agreement for Java SE to download this software.		
<input type="radio"/> Accept License Agreement <input checked="" type="radio"/> Decline License Agreement		
Product / File Description	File Size	Download
Linux x86	135.24 MB	<a href="#">jdk-8u25-linux-i586.rpm</a>
Linux x86	154.88 MB	<a href="#">jdk-8u25-linux-i586.tar.gz</a>
Linux x64	135.6 MB	<a href="#">jdk-8u25-linux-x64.rpm</a>
Linux x64	153.42 MB	<a href="#">jdk-8u25-linux-x64.tar.gz</a>
Mac OS X x64	209.13 MB	<a href="#">jdk-8u25-macosx-x64.dmg</a>
Solaris SPARC 64-bit (SVR4 package)	137.01 MB	<a href="#">jdk-8u25-solaris-sparcv9.tar.Z</a>
Solaris SPARC 64-bit	97.14 MB	<a href="#">jdk-8u25-solaris-sparcv9.tar.gz</a>
Solaris x64 (SVR4 package)	137.11 MB	<a href="#">jdk-8u25-solaris-x64.tar.Z</a>
Solaris x64	94.24 MB	<a href="#">jdk-8u25-solaris-x64.tar.gz</a>
Windows x86	157.26 MB	<a href="#">jdk-8u25-windows-i586.exe</a>
Windows x64	169.62 MB	<a href="#">jdk-8u25-windows-x64.exe</a>

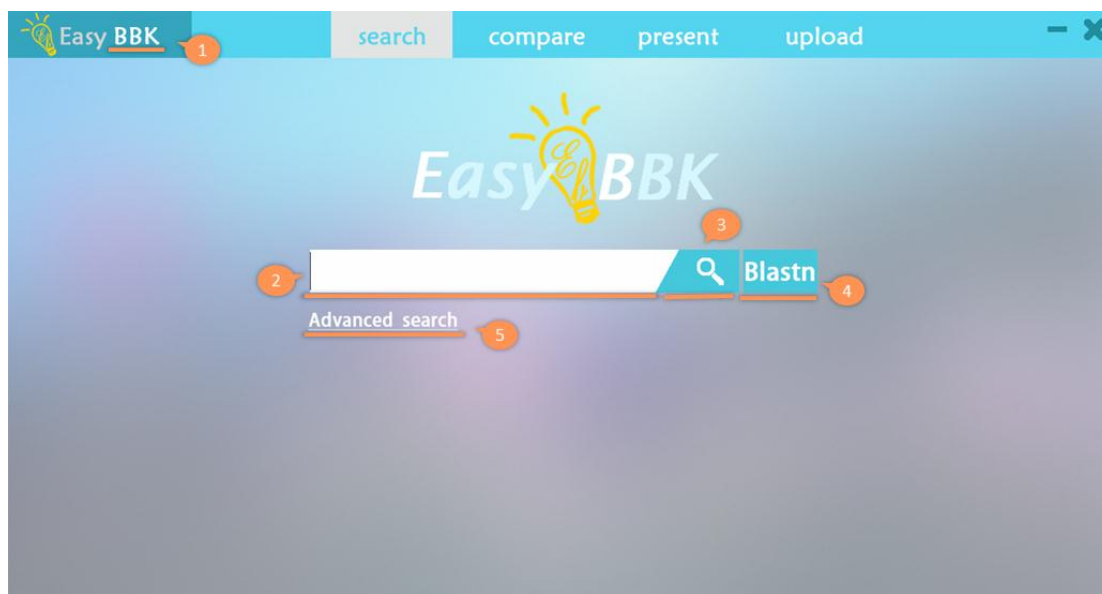
3. Double click the Easybbk.jar and start Easybbk

## 2.2.2 Home Page

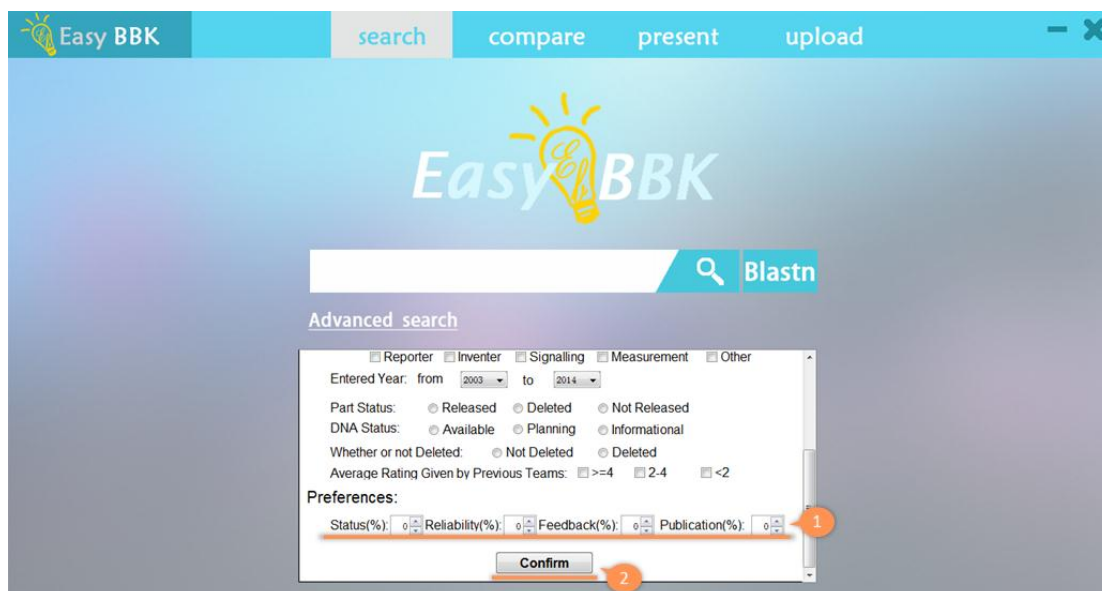


1/2. Click each icon to enter each function

## 2.2.3 Search



1. Go back to home page
2. Input keyword or sequence
3. Search by keyword
4. Search by sequence
5. Display advanced search conditions



1. Adjust the weight of the 4 properties to make them add up to 100
2. Click "Confirm" before starting search by keyword or sequence

1. Forward or Back to previous or next page
2. Display detail information of the biobrick
3. Click to view the main page of the biobrick on iGEM Registry
4. Check to add the biobrick to “compare”
5. Click to view the result most related to the biobrick on Google Scholar
6. Go to the previous page of search results
7. Go to the next page of search results
8. After biobricks being added from “search”, click to go to “compare” the biobricks

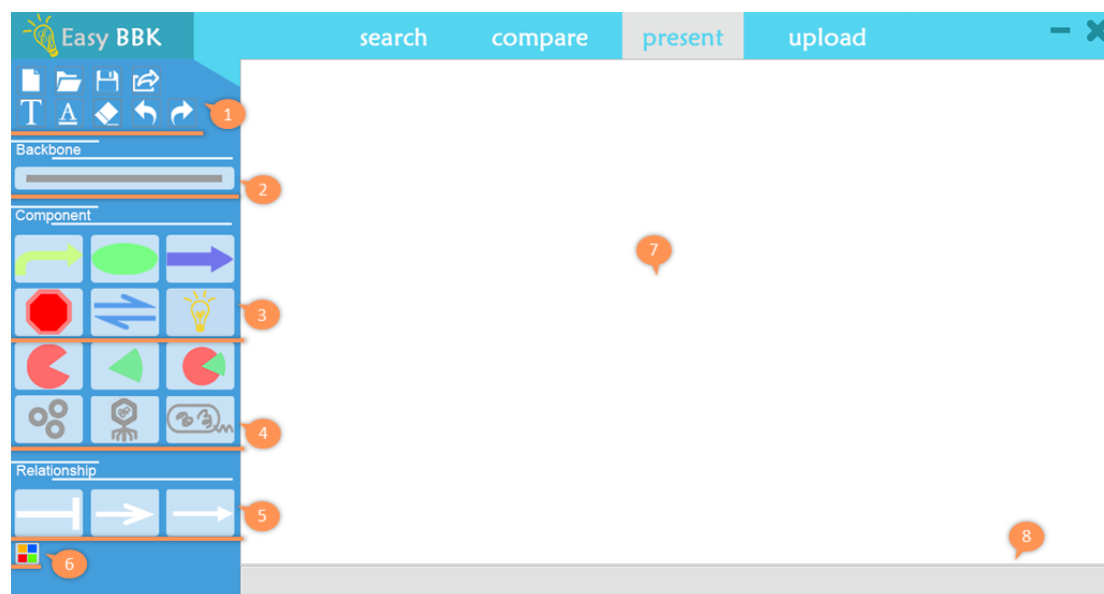
## 2.2.4 Compare

Part Name	BBa_R0040	BBa_J23103
Type	Regulatory	Regulatory
URL	<a href="http://parts.igem.org/Part:BBa_R0040">http://parts.igem.org/Part:BBa_R0040</a>	<a href="http://parts.igem.org/Part:BBa_J23103">http://parts.igem.org/Part:BBa_J23103</a>
Short Description	TetR repressible promoter	constitutive promoter family member
Status		
Part Status	Released HQ 2013	Released HQ 2013
Sample Status	In stock	In stock
DNA Status	Available	Available
Delete this Part	Not Deleted	Not Deleted
Confirmed Times	5	3
Length of Documentation	31610	33272
Reliability		
Part Results	Works	Works

1. Remove the biobrick below from “Compare”
2. Click to view the main page of the biobrick on iGEM Registry
3. After biobricks being viewed in “compare”, click to go back to “search” results

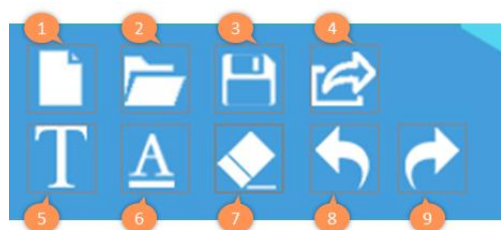
## 2.2.5 Present

### 2.2.5.1 General introduction of Present Page



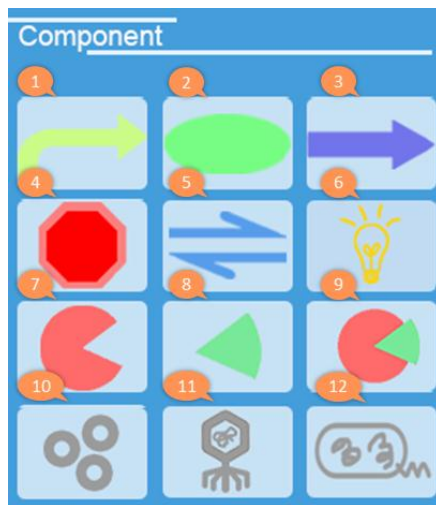
1. Basic Functions
2. Backbone
3. Components on backbone
4. Proteins, plasmid, virus and bacteria
5. Relation between biobricks
6. Style settings of lines above
7. Bio-system drawing panel
8. Status bar

#### Basic Functions



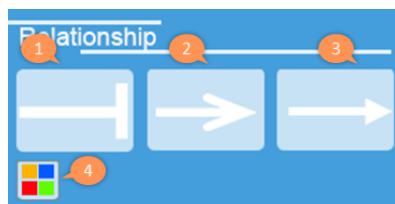
1. Discard previous work and create a new bio-system
2. Open previously saved XML file
3. Save the drawn bio-system as an XML file to further edit next time
4. Export the picture of the bio-system as .jpg, .bmp or .png file.
5. Add text to the drawing panel
6. Change the font, size and color of the text
7. Delete components on drawing panel
8. Undo
9. Redo

## Components on in bio-systems



1. Promoter
2. Ribosome binding site (RBS)
3. Protein coding sequence
4. Terminator
5. Primer
6. Reporter
7. Protein 1
8. Protein 2
9. Combined protein
10. Plasmid
11. Virus
12. Bacteria

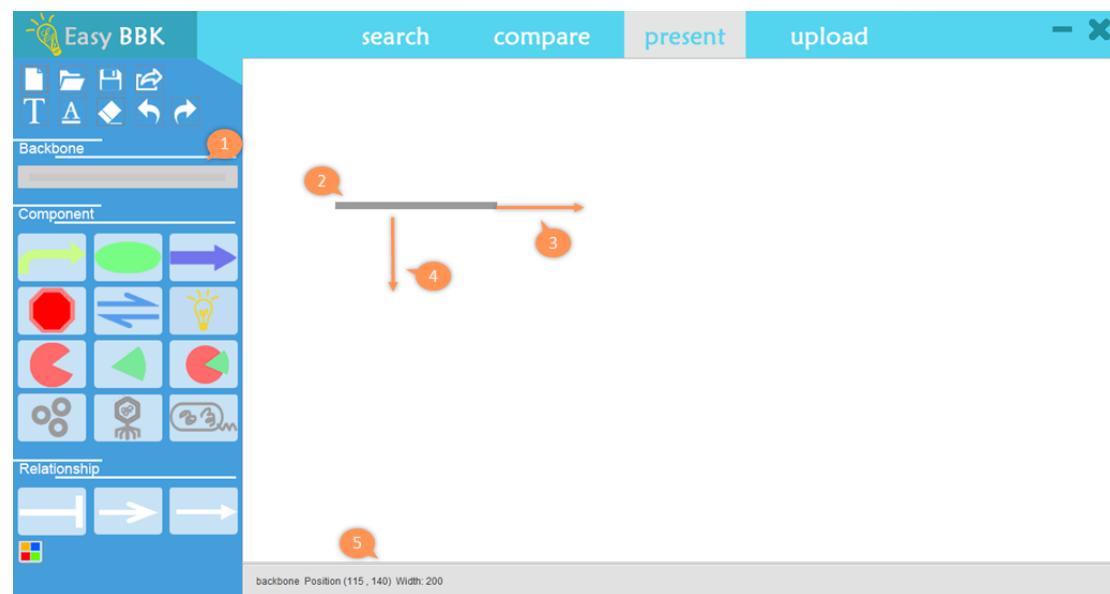
## Relation and backbone in bio-systems



1. Inhibit
2. Enhance
3. Other relations (e.g. this could denote a coding sequence code a protein.)
4. Backbone
5. Style settings of lines above

### 2.2.5.2 Start presenting your bio-system

#### 1st: Draw backbone



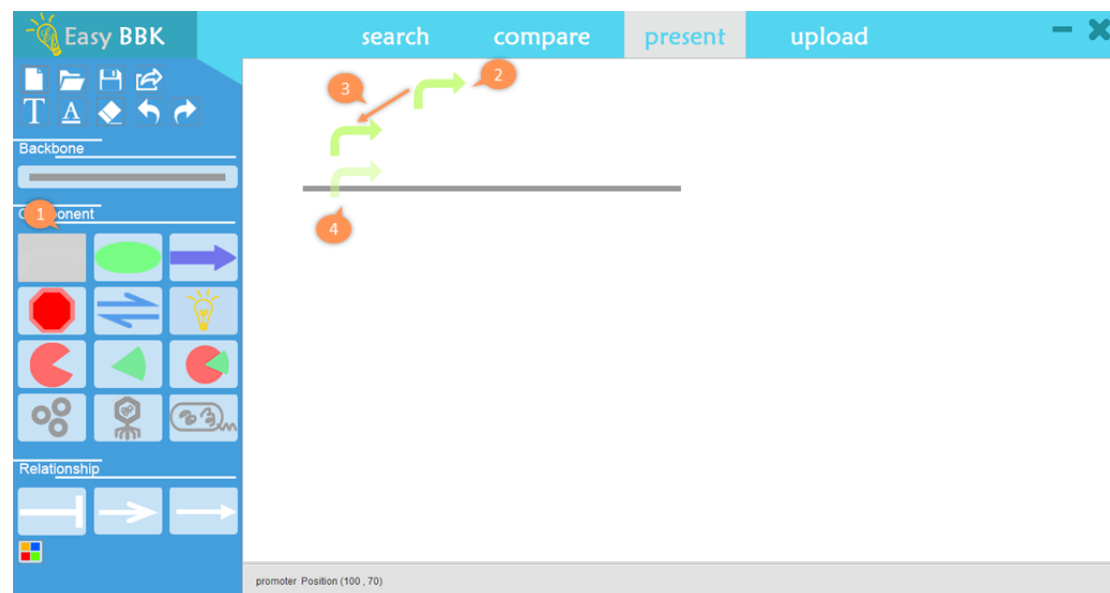
Step 1. Click the “Backbone” icon

Step 2. Click anywhere on drawing panel to add a “Backbone”

Step 3. Stretch the “Backbone”

Step 4. Drag the “Backbone” to anywhere on drawing panel

#### 2nd: Add a component to backbone



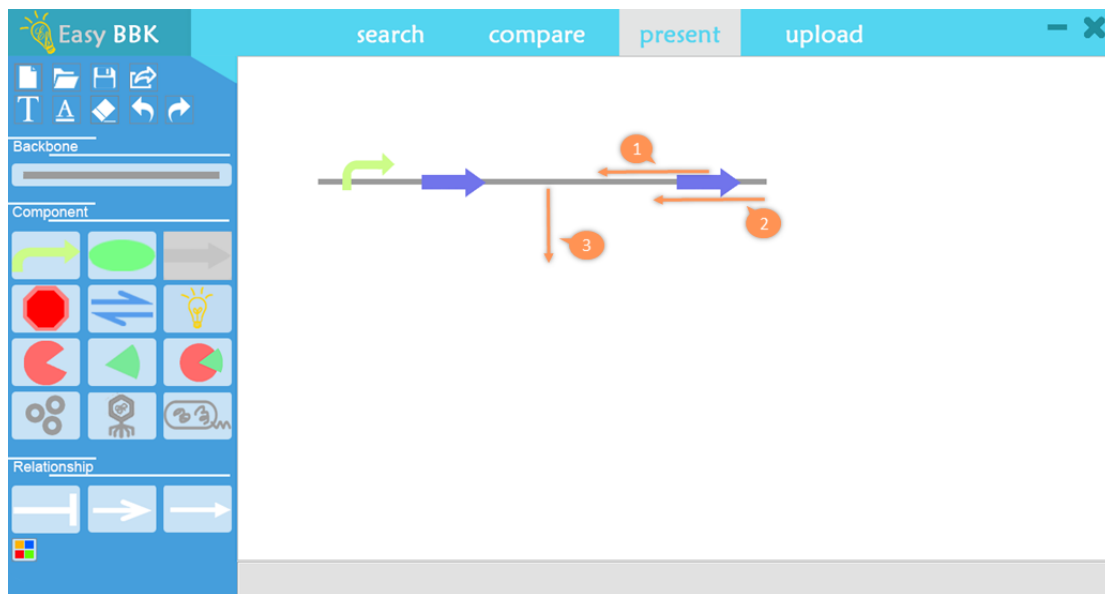
Step 1. Click the “Promoter” icon

Step 2. Click anywhere on drawing panel to add a “Promoter”

Step 3. Drag the “Promoter” near “Backbone”

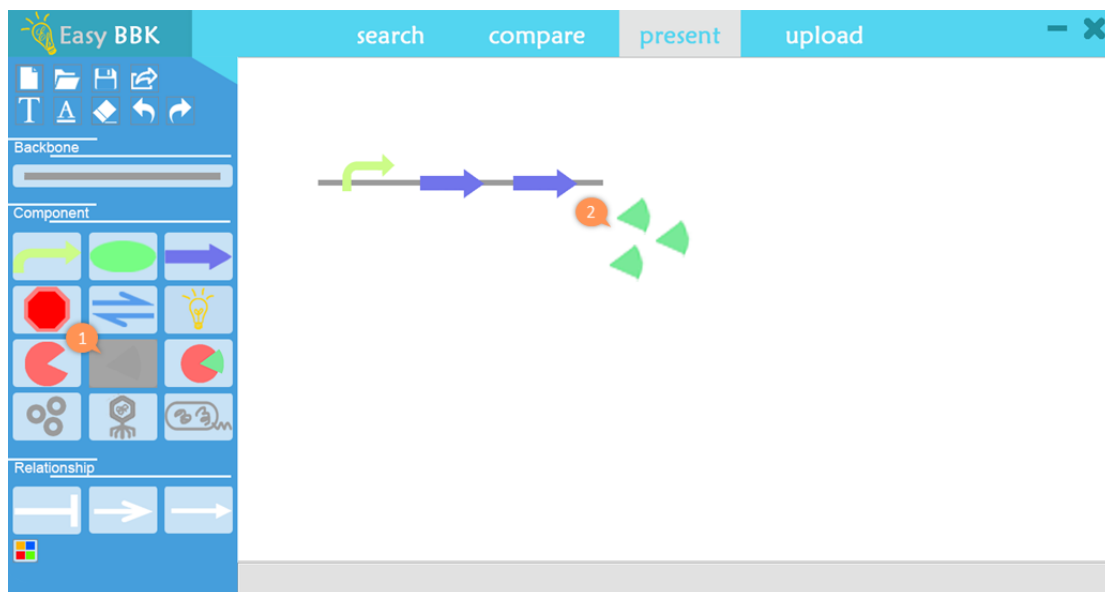
Step 4. Release the mouse to make the “Promoter” automatically become part of the sequence

**3nd: Adjust the position of the components or backbones already existing on the drawing panel**



1. Drag the “Protein Coding Sequence” to a suitable position
2. Stretch the “Backbone” to a suitable length
3. Drag the “Backbone” to anywhere on drawing panel

**4th: Add proteins to bio-system**

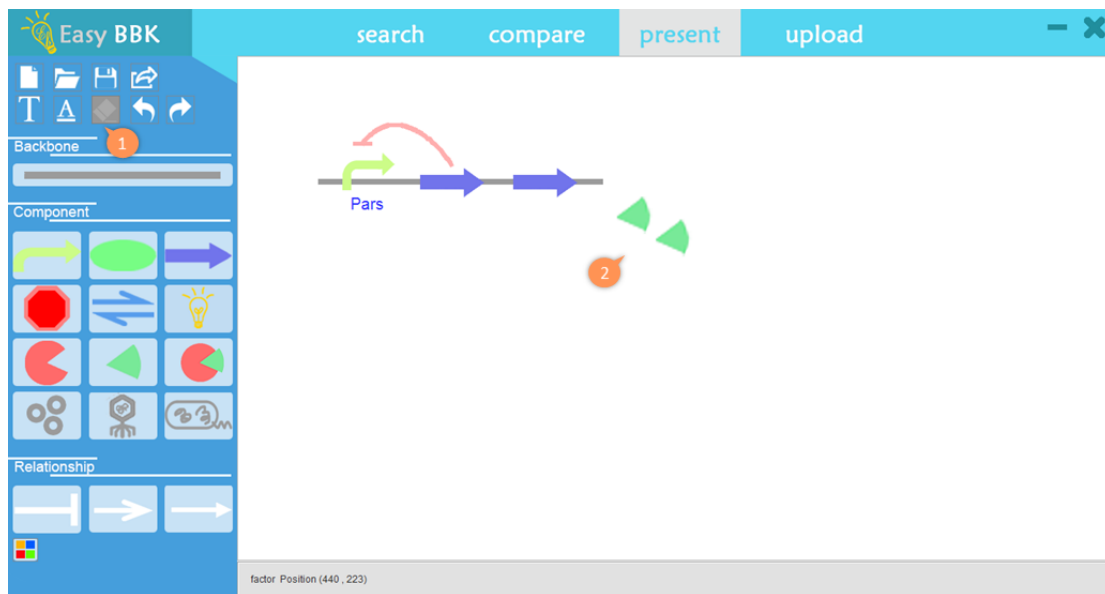


- Step 1. Click the “Protein 2” icon
- Step 2. Click anywhere on drawing panel to add proteins





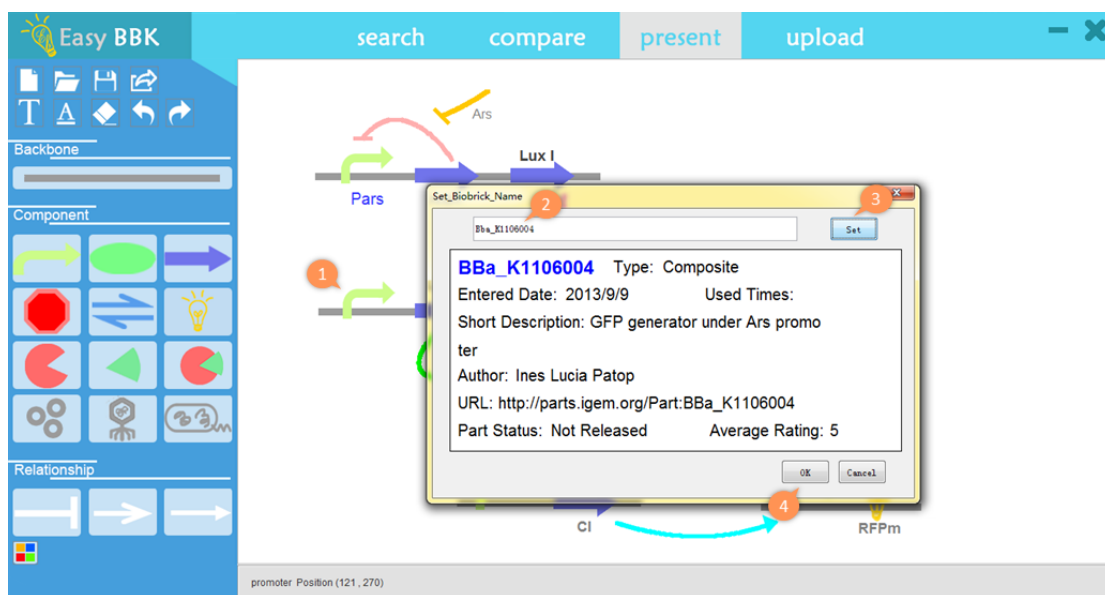
### 7th: Delete a component on drawing panel



Step 1. Click this icon

Step 2. Click any component on drawing panel to delete it

### 8th: Set the detail of the component on drawing panel



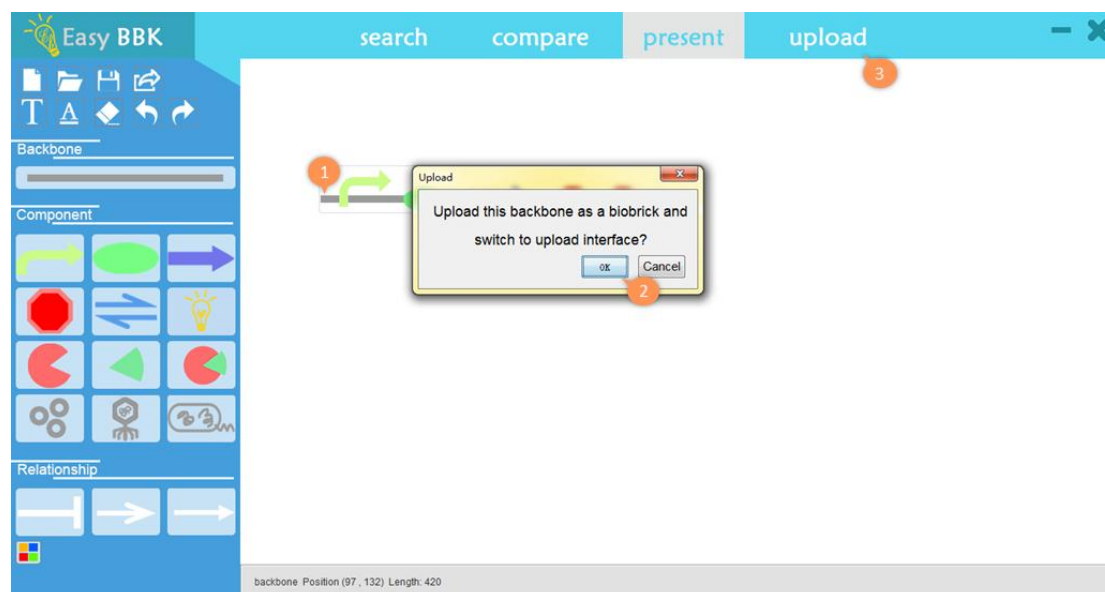
Step 1. Double click any component on backbone

Step 2. Input a part name

Step 3. Click "Set" to search this part out from database

Step 4. Click "OK" to set the detail of the component

### 9th: Upload the presented biobrick



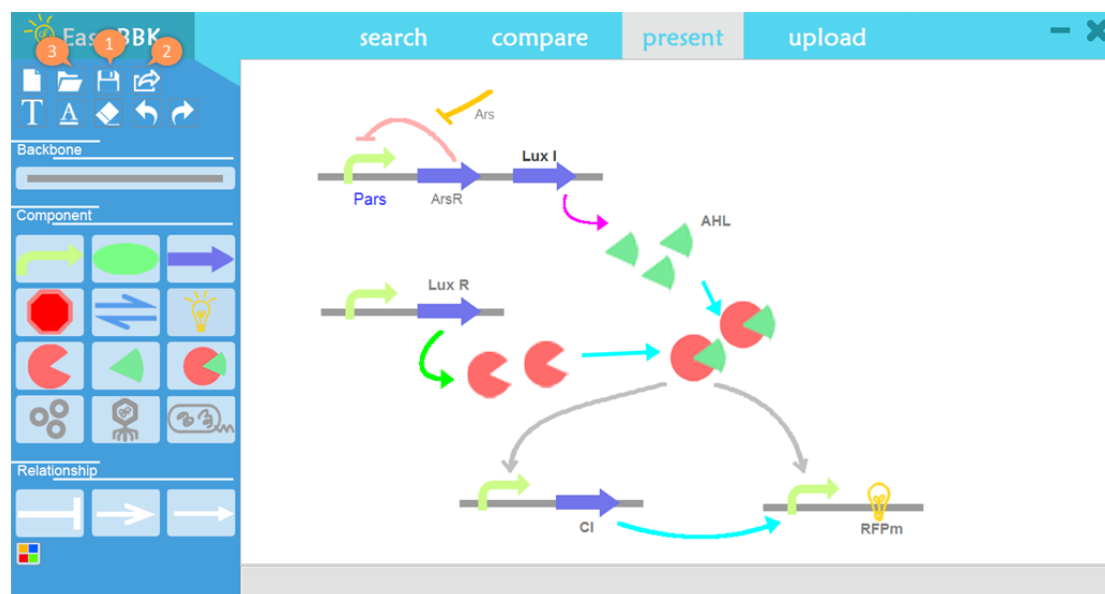
By setting the detail on all the biobricks on a single backbone, user can choose to upload the biobrick to Registry or Easy BBK database. The upload form will be automatically filled out.

Step 1. Double click the backbone of the biobrick

Step 2. Click “OK” to confirm to upload the biobrick

Step 3. Go to “upload” to check the filled out form

### 10th: On finishing presenting the bio-system (Using 2013 Buenos Aires as example)



Step 1. Save the drawn bio-system as an XML file to further edit next time

Step 2. Export the picture of the bio-system as .jpg, .bmp or .png file.

Step 3. Open previously saved XML file continue drawing

## 2.2.6 Upload

1. Input information of biobrick

1. Input iGEM user name and password
2. Click to submit the biobrick to Easy BBK database
3. Click to submit the biobrick to Registry